

SULFUR DIOXIDE FROM THE ATMOSPHERIC CHEMISTRY EXPERIMENT (ACE) SATELLITE

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The version 4.0 dataset from the Atmospheric Chemistry Experiment – Fourier Transform Spectrometer (ACE-FTS) on SCISAT, released in March of 2019, has sulfur dioxide (SO₂) volume mixing ratio (VMR) profiles as a routine data product. From this dataset, global SO₂ distributions between the altitudes of 10.5 km and 23.5 km are analyzed. The global distribution of all SO₂ VMR data by altitude is divided into 30° and 5° latitude zones. Seasonality of global SO₂ distribution is explored. Volcanic SO₂ plumes are isolated in the dataset and compared with aerosol extinction data from the ACE-FTS Imager. SO₂ is converted to sulfate aerosols on a timescale of about one month. Sulfate aerosols increase the Earth's albedo and cool the surface.